

REMARKS

Claims 10-15 are pending. In view of the following comments, Applicants respectfully request favorable consideration and allowance of the claims.

Rejection Under 35 U.S.C. § 103 Over Gardam, Horsthemke, Horsthemke II, and Wilmeth

Claims 10-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over "The Production of Machinable Cr Deposits" by Gardam ("Gardam") in combination with EP 1,205,582 and U.S. Patent No. 6,837,981 to Horsthemke (collectively "Horsthemke"), DE 44 32 512 to Horsthemke ("Horsthemke II"), and U.S. Patent No. 5,196,108 to Wilmeth et al. ("Wilmeth"). Applicants respectfully request reconsideration of the rejection based on the following comments. Applicants also incorporate by reference their comments from the Amendments of May 21, 2008, January 16, 2008, and April 2, 2007.

A *prima facie* case of obviousness of Applicants' claimed invention has not been established, as Gardam, Horsthemke, Horsthemke II, and Wilmeth, individually or in combination, do not disclose all of the features included in independent claim 10. Specifically, the references do not teach or suggest a structured "hard chrome layer compris[ing] at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure."

The Examiner asserted that the "hard chrome layer compris[ing] at least one of a cup-shaped structure, a labyrinth-like structure, or a column-shaped structure," is not a method step. In method claims, it is the overall method steps that are give patentable weight, not the intended result limitations thereof. The Examiner further asserted that the intended result limitations in the present claims do not materially alter the overall method. The Examiner asserted that where

Applicants claim a process in terms of a function, property or characteristic and the process of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, Applicants should point out the manufacturing steps that would be expected to impart the distinctive structural characteristics to the final product.

Respectfully, the process of the prior art is not the same as claim 1; there is no reference that discloses the process of the application or of claim 1. Consequently, there is no reference that discloses the relevant function, property or characteristic of the process. Further, the application at page 3 and page 5 (paragraphs [0024] and [0036] of the published application) note at least some of the circumstances required to achieve the required structures (i.e. cup-shaped, labyrinth-like, column-shaped), including a cathodic current yield of 12% or less. Hence, Applicant has pointed out integral distinctive steps expected to impart the distinctive structural characteristics to the final product.

The Examiner also asserted that the “wherein ...such that” clause in a method claim is not given patentable weight when it simply expresses the intended result of a process step positively recited (MPEP §2111.04).

However, if the clause (i.e. as referenced by the Examiner) states conditions material to patentability, it cannot be ignored in order to change substance of the invention. Hoffer v. Microsoft, 74 U.S.P.Q.2d 1481 (Fed. Cir. 2005). In this instance, the “wherein...such that” clause limits the claim of the method of producing a structured hard chrome layer since the clause describes the required cathodic current yield in the production of the structured hard chrome layer needing to be 12% or less, and describes the hard chrome layer structure (at least one of a cup-shaped structure, a labyrinth structure, or a column-shaped structure), both of which

are described in the specification and are integral parts of the invention. See the specification, and for example, paragraphs [0004], [0008], [0036], and [0024] of the published application. These limitations are more than the intended result of a process step; they are part of the process itself. Claim 1 is limited to a method that provides a non-spherical hard chrome layer structure (i.e. cup-shaped, a labyrinth, or column-shaped) and a method that is limited to a cathodic current yield of 12% or less. Hence, the clause is given patentable weight. Id.

The Examiner maintained that the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested. The prior art relied on has not suggested a hard chromium layer with a cathodic current yield of 12% or less. Applicant respectfully maintains that the prior art has not suggested all the elements of Applicant's independent claim 1. In the Office Action of February 28, 2008, the Examiner asserted that Gardam teaches a method of producing a structured *hard* chrome layer comprising an electrolyte comprising a Cr (VI) compound and sulphuric acid. The Examiner then modified the electrolyte based upon DE '512, Horsthemke, and Wilmeth, because they teach electrodepositing chromium. However, Gardam teaches a method of electrodepositing *softer, machineable chromium layers, not hard chromium layers*. Further, there is a significant difference if one is electrodepositing hard chromium or soft chromium as to choice of variables to accomplish the task, including electrolyte components, temperature, current density, and so on. The Examiner has provided no motivation as to why one skilled in the art would modify a process producing softer (machineable) chromium by looking to processes producing hard chromium layers (requiring grinding if shaping is required). All chromium is not the same. One skilled in the art

would tend to look at similar systems (softer chromium production), unless impermissible hindsight is used.

Further, in response to Applicant's statement that there is no suggestion or motivation to add the missing electrolyte components to Gardam, the Examiner asserted that it is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose. The idea of combining then flows logically from their having been individually taught by the prior art. (MPEP §2144.06). Respectfully, the Examiner has not identified "the same purpose". Arguendo, the "purpose" of Gardam is directed to electrodepositing soft chromium layers that are machineable; the "purpose" of DE '512, Horsthemke, and Wilmeth is directed to electrodepositing hard chromium layers. These are not the "very same purpose." The "same purpose" is not merely to electrodeposit any type of chromium, as there is a difference between electrodepositing hard chromium layers and soft chromium layers, and the operating parameters required to do so successfully are different. Further, the operating parameters required to obtain the claimed structures are different than those disclosed in Gardam, DE '512, Horsthemke and Wilmeth. The Gardam composition and the compositions associated with DE '512, Horsthemke and Wilmeth, "...relate to the use of different materials to produce end products having different properties and, in our opinion, they cannot properly be combined to reject claim..." In re Crockett, 126 U.S.P.Q. 186 (C.C.P.A. 1960).

Further, the prior art has not suggested the combination of the above-noted references. As earlier noted, the Gardam reference is directed to forming *soft chromium layers* for cutting tools and the other cited references are directed to formation of *hard chromium layers* using

different electrolytes. The Examiner modified the electrolyte disclosed by Gardam with the missing electrolyte components using the Horsthemke I & II, and Wilmeth references. However, there is no motivation, suggestion or teaching to combine the cited references. The Examiner has shown no motivation to modify the Gardam reference as the Examiner has suggested. There is no rational, articulated reason provided to look at a reference directed to the formation of soft chromium layers when hard chromium layers are desired. ("[R]ejections on obviousness cannot be sustained with mere conclusory statements..." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). Further, the Gardam reference is directed to the formation of soft chromium layers that can be machined by a cutting tool (page 69), *not* to hard chromium layers that must be *ground* to be shaped. The modification of Gardam proposed by the Examiner, and the result proposed by the Examiner, would render Gardam unsatisfactory for its intended purpose, which is to provide *soft chromium layers* that are *machinable* by a cutting tool. If a proposed modification would render the prior art invention being modified (Gardam) unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). MPEP §2143.01. Thus, there is no suggestion or motivation to add the missing electrolyte components to Gardam. The Examiner has not made out a *prima facie* case of obviousness.

Further, as recognized by the Examiner, Horsthemke teaches operation at "at a cathode efficiency of at least 15%." (Col. 5, lines 50-58). Likewise, as recognized by the Examiner, Wilmeth teaches away from its combination with Gardam. Wilmeth teaches a "cathode efficiency of the process is greater than about 18%." (Col. 6, lines 44-46). In addition, Gardam teaches away from the use of lower current efficiencies stating, "However the low cathode

current efficiency of 6% and consequent low plating rate of about 0.0006 cm/hr which are obtained with these conditions are impractical." Further, Gardam teaches the addition of trivalent metallic ions increases the cathodic current efficiency of chromium depositions at high temperatures, providing examples reaching cathodic current efficiencies of 10% and 12%. In each case, the references point to the *desire to increase* the cathodic current efficiency to greater percentages. (pages 71-73). However, none of the references teaches the desire for a cathodic current efficiency of 12% or less, and hence teach away from the instant application. Further, the current yield of 12% noted in Gardam comes as a result of the particular operating circumstances that include the addition of ferric or ferrous compounds to the electrolyte. The electrolyte of claim 1 does not include ferric or ferrous compounds. The current yield is not simply transferable from one electrolyte to another. The proposed adjustments the Examiner proposed to the Gardam electrolyte do not necessarily maintain the 12% current yield. Hence, Gardam, arguably, teaches a current yield of 12% by adding ferric or ferrous compounds to the electrolyte of Gardam, which ferric or ferrous compounds are not evident in the instant application.

With respect to specific features of the claims depending from independent claim 10, these are not commented on further, as they are presently moot given the above analysis, although Applicants do not acquiesce in the Examiner's position. Applicants respectfully request withdrawal of the rejection.

Conclusion

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Irene Eckert', with a stylized, flowing script.

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